"Finger agnosia and acalculia: Neglected issues"

Andres, Michael ; Michaux, Nicolas ; Lerens, Elodie ; Seron, Xavier

Abstract

Objective: Finger agnosia refers to the inability to discriminate one's fingers and is frequently associated with acalculia in the Gerstmann syndrome. This co-occurence of symptoms has been related to the helping role of fingers for counting but the cognitive components involved in finger agnosia remain poorly documented. This study investigates the effect of attention allocation on finger agnosia. Method: PM, a 54-year-old patient with a right parietal lesion, showed signs of neglect and difficulties for calculating and recognizing his fingers. In addition to the neuropsychological examination, we measured speed and accuracy in tasks that required PM to move a finger in response to its name or to mentally solve addition and subtraction problems. His performance was compared to the performance of healthy participants matched for age and education. Results: The neuropsychological examination evidenced left neglect and difficulties to discriminate fingers of the left hand in tasks that...

Document type : *Communication à un colloque (Conference Paper)*

Finger agnosia and acalculia : Neglected issues

Michael Andres[1,2], Nicolas Michaux[1], Elodie Lerens[2], & Xavier Seron[1]

[1] Psychological sciences research institute, Université catholique de Louvain, Belgium

[2] Institute of neuroscience, Université catholique de Louvain, Belgium

Objective: Finger agnosia refers to the inability to discriminate one's fingers and is frequently associated with acalculia in the Gerstmann syndrome. This co-occurence of symptoms has been related to the helping role of fingers for counting but the cognitive components involved in finger agnosia remain poorly documented. This study investigates the effect of attention allocation on finger agnosia.

Method: PM, a 54-year-old patient with a right parietal lesion, showed signs of neglect and difficulties for calculating and recognizing his fingers. In addition to the neuropsychological examination, we measured speed and accuracy in tasks that required PM to move a finger in response to its name or to mentally solve addition and subtraction problems. His performance was compared to the performance of healthy participants matched for age and education.

Results: The neuropsychological examination evidenced left neglect and difficulties to discriminate fingers of the left hand in tasks that put high demands on attention allocation. Finger recognition was slower for the left than for the right hand when the two hands were tested in the same block of trials, whereas no difference was observed when they were tested in separate blocks. In arithmetic tasks, PM took more time to solve subtraction than addition problems.

Conclusions: We conclude that, in the present case, finger agnosia is contingent on a spatial attention deficit. To account for the specific deficit of the patient in subtraction, we propose that subtracting a number involves shifting attention leftward on a visuospatial medium where numbers are represented from left to right.